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December 30, 2009

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

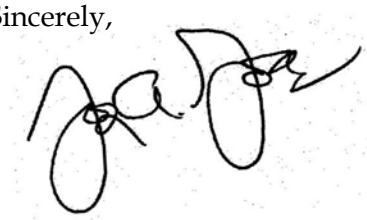
Re: GN Docket Nos. 09-47, 09-51, 09-137
Ex parte filing

Dear Ms. Dortch:

On December 29, 2009, Alexandra Field and Doug Brandon of TerreStar Networks Inc. ("TerreStar") met with John Leibovitz, Paul de Sa, Jim Bird, Gardner Foster, Ron Repasi, Joel Rabinovitz, and Tom Peters of the Commission to discuss the matters addressed in the attached Reply Comments, which were filed by TerreStar in the above-referenced proceedings on November 13, 2009, and in the attached presentation.

Please direct any questions concerning this matter to the undersigned.

Sincerely,



Joseph A. Godles
Attorney for TerreStar Networks Inc.

cc: John Leibovitz
Paul de Sa
Jim Bird
Gardner Foster
Ron Repasi
Joel Rabinovitz
Tom Peters

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
International Comparison and Consumer	)	
Survey Requirements in the Broadband Data	)	
Improvement Act	)	GN Docket No. 09-47
	)	
A National Broadband Plan for Our Future	)	GN Docket No. 09-51
	)	
Inquiry Concerning the Deployment of	)	
Advanced Telecommunications Capability to	)	
All Americans in a Reasonable and Timely	)	
Fashion, and Possible Steps to Accelerate	)	GN Docket No. 09-137
Such Deployment Pursuant to Section 706 of	)	
the Telecommunications Act of 1996, as Amended	)	
by the Broadband Data Improvement Act	)	

REPLY COMMENTS OF
TERRESTAR NETWORKS INC.

TerreStar Networks Inc. ("TerreStar"), the holder (through its subsidiary, TerreStar License Inc.) of a letter of intent authorization to provide Mobile Satellite Service ("MSS") in the United States via the TerreStar-1 satellite using spectrum in the 2 GHz band,[1] hereby replies to the comments filed by MetroPCS and Sprint Nextel in the above-captioned proceeding. TerreStar's reply is limited to the suggestion made in

[1] *See* Order, DA 07-2028 (Int'l Bur., May 10, 2007); *TMI Communications and Company, Limited Partnership*, Order, 16 FCC Rcd 13808 (Int'l Bur. 2001); *TMI Communications and Company, Limited Partnership, and TerreStar Networks Inc. Application for Review and Request for Stay*, Memorandum Opinion and Order, 19 FCC Rcd 12603 (2004). On February 4, 2008, the Commission was notified of a *pro forma* assignment of the LOI authorization from TerreStar Networks Inc. to TerreStar License Inc., which is a wholly owned subsidiary of TerreStar Networks Inc. *See* Letter from Joseph A. Godles, Counsel to TerreStar Networks Inc., to Marlene H. Dortch, Secretary, FCC, Re: Call Sign LOI-TMI (Feb. 4, 2008).

two parties' filings in the initial comment round in this proceeding that 2 GHz MSS licensees are not properly using their spectrum assignments.[2]

As shown below:

- the claim that holders of 2 GHz MSS spectrum authorizations are not investing in satellite technology and intend to provide terrestrial-only service is demonstrably false;
- there is no basis for revisiting the Commission's determination that MSS service capable of offering both satellite and terrestrial services in the 2 GHz band is the best and highest use of the 2 GHz spectrum allocated to MSS; and
- multiple commenters, including those representing terrestrial commercial wireless interests, have recognized the significant contribution made by 2 GHz and other MSS systems to mobile competition.

[2] *See* Comments of MetroPCS Communications, Inc., GN Docket No. 09-47 (October 23, 2009) ("Comments of MetroPCS"), at 11-12; Comments of Sprint Nextel Corporation, GN Docket No. 09-47 (October 23, 2009) ("Comments of Sprint Nextel"), at 9-12

I. TERRESTAR HAS USED ITS FCC AUTHORITY TO CREATE THE FIRST INTEGRATED MSS SATELLITE/ TERRESTRIAL WIRELESS NETWORK.

In conclusory and unsupported allegations, MetroPCS and Sprint Nextel question the commitment made by MSS licensees to their 2 GHz spectrum.[3]

In fact, TerreStar has spent hundreds of millions of dollars to construct TerreStar-1 and launch the satellite into its assigned geosynchronous orbital location. TerreStar-1 includes state of the art technology designed and developed specifically to support an integrated satellite/terrestrial service. TerreStar-1's 18-meter reflector, which is the world's largest commercial satellite antenna in orbit, has been successfully deployed. On July 20, 2009, TerreStar announced the successful completion of an end-to-end phone call over TerreStar-1, between two of TerreStar's quad-band GSM and tri-band WCDMA/HSPA smartphones with integrated satellite-terrestrial voice and data capabilities.

TerreStar-1 is fully operational, and the satellite is poised to deliver voice, data and video services over TerreStar's all IP next-generation mobile broadband network that combines the power of TerreStar-1, an all-IP core network, and the latest in smartphone technology.[4]

On September 30, 2009, TerreStar announced that it had entered into an agreement with AT&T to bring to market the first fully integrated satellite cellular

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[3] *See* Comments of MetroPCS, at 11-12; Comments of Sprint Nextel at 11.

[4] On July 20, 2009, TerreStar notified the Commission by final milestone certification that the TerreStar-1 satellite system is operational. *See* Letter from Joseph A. Godles, Counsel to TerreStar License Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission (Jul. 20, 2009); Public Notice, Policy Branch Information: Actions Taken, Report No. SAT-00619 (rel. Jul. 24, 2009).

smartphone. The smartphone combines 3G terrestrial wireless capability with satellite voice and data in a standard smartphone size and form factor. Using one phone number and one device, users will be able to access voice and data services in the United States, Puerto Rico, the U.S. Virgin Islands and offshore coastal waters over either the AT&T cellular network or the TerreStar satellite network. TerreStar expects to start commercial wholesale service in late 2009 or early 2010.

TerreStar's actions are turning the Commission's policy vision for the 2 GHz MSS band into commercial reality. TerreStar's substantial investment in satellite assets, ground-based beam forming infrastructure, handset/chipset development, and ATC technology are ushering in a new era in mobile communications and clearly demonstrate that TerreStar is not only efficiently using its spectrum assignment but is also innovating in ways that will bring new wireless services to sectors like first responders, enterprise continuity and rural consumers that heretofore have been underserved by conventional wireless carriers like MetroPCS and Spring Nextel.[5]

II. INTEGRATED SATELLITE/TERRESTRIAL SERVICE IS THE HIGHEST AND BEST USE OF THE MSS PORTION OF THE 2 GHZ BAND.

Enabling MSS licensees to provide integrated MSS/ATC services enhances spectrum efficiency, and the Commission has found that systems capable of offering both satellite and terrestrial services in the MSS portion of the 2 GHz band represent the

[5] Sprint Nextel's reliance on the fact that the Commission has granted TerreStar milestone extensions, *see* Comments of Sprint Nextel at 11, n.34, is misplaced. There is no basis for taking spectrum from a licensee in these circumstances. And as the history of 800 MHz and 2GHz BAS relocation makes clear, Sprint is no stranger to FCC extensions.

"highest and best" use of the band.[6] The Commission's finding rests on a solid foundation. Satellite and terrestrial services complement one another, and having both capabilities in one handset from one or more service providers enables a host of services that simply are not possible if spectrum is limited to terrestrial use.

The MetroPCS and Sprint Nextel comments provide no basis for revisiting the Commission's long-standing "highest and best use" determination. To the contrary, their proposals would reduce spectrum efficiency and run counter to Sprint Nextel's own call for flexible spectrum use policies.[7]

The nature of such comments highlights the point that the Commission should be wary of advocacy that blurs the significant differences between technologies and business plans and the impact that those fundamentals have on thresholds of utilization and efficient use of spectrum. Mobile satellite technology requires a different investment pattern and provides different availability opportunities than mobile terrestrial. It can also provide services that – alone or in conjunction with other providers – bring public value that terrestrial alone cannot provide. As a result, any analysis of the degree of use of MSS spectrum by licensees will, by default, need different metrics than those used to assess traditional terrestrial-only services.[8]

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[6] *In the Matter of Use of Returned Spectrum in the 2 GHz Mobile Satellite Service Frequency Bands*, Order, FCC 05-204, 20 FCC Rcd 19696, 19721. *See also* Comments of The Association for Maximum Service Television, Inc. and the National Association of Broadcasters, GN Docket 09-157 (Sept. 30, 2009), at 5-6.

[7] *See* Comments of Sprint Nextel at 17-20.

[8] For example, it is common in the terrestrial wireless business to analyze minutes/kilobits of use per MHz. This metric has little application in the satellite field. For MSS services, many subscribers purchase satellite capability because they want the resiliency a redundant network can afford and may use satellite minutes or kilobits only when terrestrial services are

For all of these reasons, the MetroPCS and Sprint Nextel proposals for repurposing 2 GHz MSS spectrum should be rejected.

III. TERRESTRIAL WIRELESS INDUSTRY REPRESENTATIVES ACKNOWLEDGE THE COMPETITIVE SIGNIFICANCE AND INNOVATION OF INTEGRATED SATELLITE/TERRESTRIAL TECHNOLOGY.

Both CTIA and Verizon Wireless have commented in a related proceeding on how integrated satellite/terrestrial technology is enhancing mobile wireless competition. Their comments address this benefit with respect to MSS systems generally and in particular with respect to TerreStar's 2 GHz integrated MSS satellite/terrestrial wireless network.[9]

In its Comments, CTIA makes note, in a section entitled "Innovative Services," of TerreStar's introduction of dual-mode smartphones capable of accessing both satellite and terrestrial networks.[10] CTIA makes a similar point in illustrating the "steady flow of new entrants" in the mobile wireless business.[11]

Similarly, Verizon Wireless, in a section entitled "Emerging and Non-Traditional Providers Present New Competitive Pressures," remarks as to how "MSS development

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unavailable. However, this smaller amount of use can be the most critical for first responders or backbone business continuity.

[9] TerreStar is a member of the MSS/ATC Coalition, which filed comments in another proceeding addressing more generally the contributions made by MSS/ATC networks to wireless competition and innovation. *See* Comments of the MSS/ATC Coalition, WT Docket No. 09-66 (June 15, 2009).

[10] Comments of CTIA, WT Docket No. 09-66 (Sept. 30, 2009), at 38.

[11] *Id.* at 12-13.

continue[s] to intensify."[12] Specifically with respect to the activities of TerreStar, Verizon Wireless states:

> TerreStar, along with SkyTerra and Infineon Technologies, recently announced the world's first multi-standard mobile platform based on Infineon's software defined radio ("SDR") technology. The technology will enable "ubiquitous mobile communications coverage from anywhere in North America using mass-market devices costing about the same as terrestrial cellular-only devices. SDR-enabled satellite-terrestrial handsets will operate with multiple cellular and satellite-based communications technologies including GSM, GPRS, EDGE, WCDMA, HSDPA, and GMR1-2G/3G." Further, TerreStar and AT&T signed a nationwide reciprocal roaming agreement last year. That roaming agreement will allow TerreStar to offer its customers roaming service over AT&T's extensive network in areas where TerreStar has not yet commenced providing service on its own, and will extend AT&T service as well. Unsurprisingly, given expanded competition, MSS handset prices have fallen, and new pricing structures appear to be emerging.[13]

These parties' statements further undercut the claims of MetroPCS and Sprint and show the increasing importance of the growing development of integrated satellite/terrestrial service in the 2 GHz band.

[12] Comments of Verizon Wireless, WT Docket No. 09-66 (Sept. 30, 2009), at 36.
[13] *Id.* at 38 (footnotes omitted).

CONCLUSION

As multiple comments in this proceeding and related proceedings show, TerreStar is not only efficiently and effectively using its 2 GHz MSS spectrum assignment, but is also creating a new class of innovative integrated satellite/terrestrial wireless services that will meet critical needs in the first responder, enterprise continuity and rural markets.

Respectfully submitted,

TERRESTAR NETWORKS INC.

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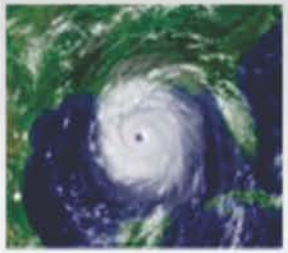
November 13, 2009

Terre Star™

Mobile Communications. Redefined.



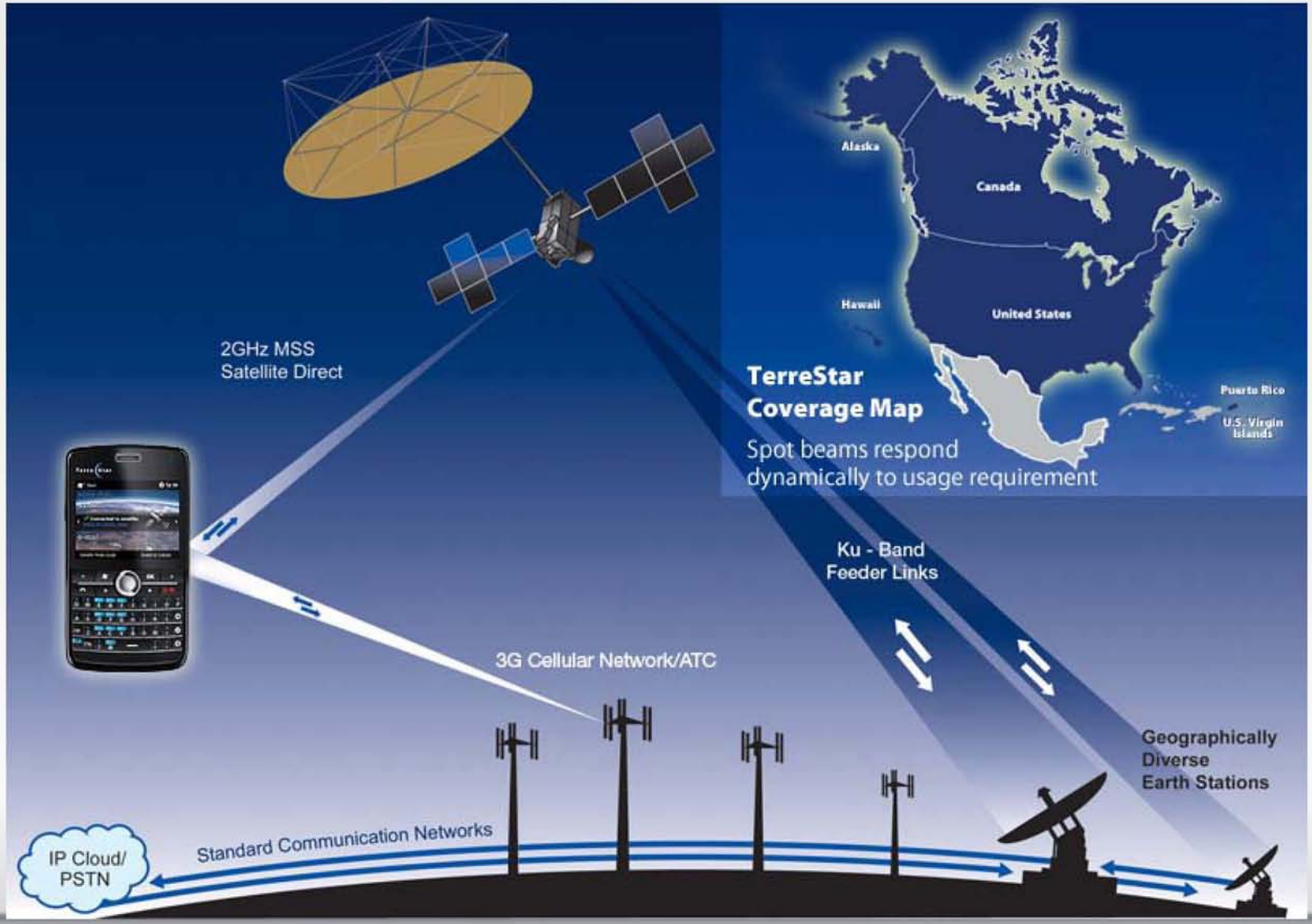



December 2009

TerreStar Delivers in 2009

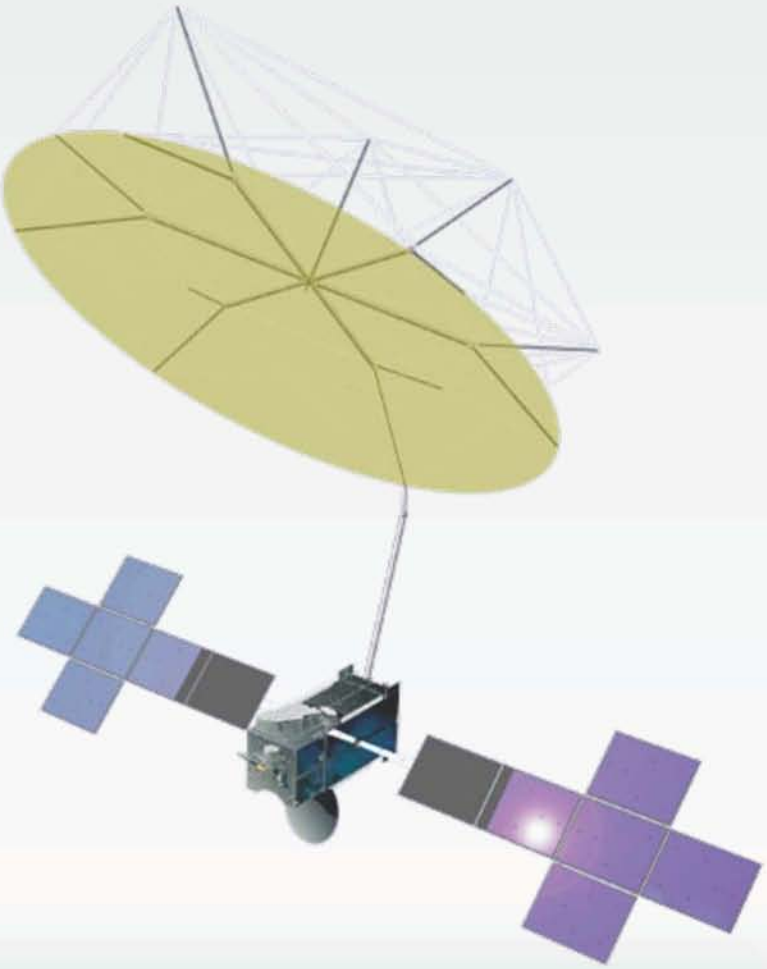
- Introduced the world's first quad-band GSM and tri-band WCDMA/HSPA smartphone with integrated all-IP satellite-terrestrial voice and data capabilities – TerreStar Genus™.
- Signed agreements with Qualcomm and Infineon to add S Band satellite capability to next generation mobile chipsets enabling integrated satellite functionality in mass-market devices costing about the same as cellular-only devices.
- Launched the world's largest, most powerful commercial communications satellite - TerreStar-1 and successfully deployed its 18 meter reflector, the largest commercial satellite antenna ever unfurled.
- Brought on-line redundant gateway earth stations in the United States and Canada.
- Completed the first end-to-end phone call over TerreStar-1 between two TerreStar GENUS™ smartphones and satisfied last regulatory milestones.
- Announced the successful completion of in-orbit testing of TerreStar-1.
- Activated an all-IP, 4G core network.
- Executed a distribution agreement with AT&T whereby AT&T will offer the TerreStar GENUS solution to its government and commercial customers.
- Signed multi-year, multi-million dollar revenue lease of 1.4GHz spectrum asset.
- Received FCC and industry certification for the TerreStar GENUS™ smartphone.

TerreStar Satellite/Cellular Network



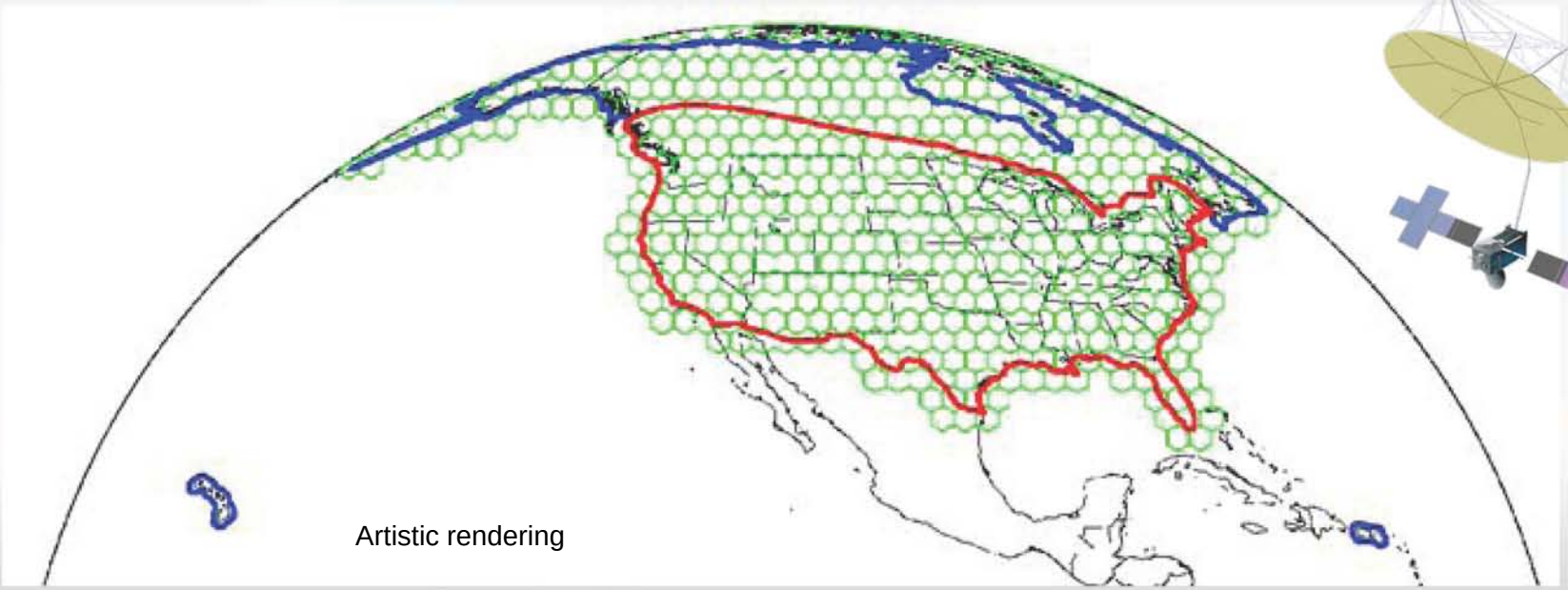
TerreStar-1 Satellite

- Orbit: Geostationary at 111°W
- Mass: 6904 Kg incl. 3140 Kg propellant
- Orbital Maneuver Life: >15 years
- Antenna
  - 18m S-band mesh
- Power
  - Solar 18 kW at beginning of life
  - Battery
  - Spacecraft 12 kW
- TerreStar-2 satellite under construction –85% complete
- Guinness Book of World Records – Heaviest Commercial Satellite



TerreStar-1 Satellite Coverage

- Ground-based beam forming (GBBF) creates up to 550 spot beams with flexible power distribution
  - Spot beams are reconfigurable
- **Primary Service Area includes CONUS and major population areas of Canada**
  - **No external antenna required on the smartphone**
- **Secondary Service Area includes Alaska, less populated parts of Canada, HI & PR/USVI**
- Extending up to 200 miles offshore
- Ability to focus capacity (bandwidth and higher power) to any area of critical demand



Frequency Re-Use

- Frequencies are re-used both in non-adjacent spot beams and ATC towers
- Only possible with an integrated network that permits dynamic link between ground based beam forming systems and terrestrial core network
- TerreStar integrated network is capable of real time frequency management between satellite and ATC to meet customer demand
  - Permits shifting of capacity between satellite and ground on a precise geographic basis
    - Example: Shift capacity to satellite in area affected by natural or man-made disaster
    - Example: Shift capacity to ground based on geography and time of day to handle rush hour drive times

Significant Assets and Capabilities

Assets

- Most powerful two-way commercial communications satellite ever launched
- TerreStar-2 85% constructed
- 2 Satellite Gateways licensed, ground segments completed -- in testing
- ATC global IP license portfolio

Capabilities

- Beam coverage: United States, Canada, Puerto Rico, Hawaii, Alaska and US Virgin Islands
- Capable of generating approximately 500 simultaneous spot beams

Significant 2 GHz Ecosystem

Industry-Leading Partners and Suppliers

Critical Partner Ecosystem is in Place and Executing to Plan

- Satellite Partners
- Devices Partners
- OSS/BSS Partners
- Network Partners

Key Dates

Final Satellite review for shipment to launch base

Commence Core Network/IT Development Program

TerreStar Network Operational

TerreStar-1 Launch

EB Commercial Terminals ready

ALL IP NETWORK AVAILABILITY

JULY

2009

2010

SERVICE AVAILABILITY

Satellite Demonstration at IACP conference

Limited Service Launch

FCC & PTCRB (industry) certification

Final hardware and software certification to perfect spectrum

Scale Commercial Service Launch with AT&T

Complete Satellite simulated calls with ground network

Terre Star

TerreStar GENUS Smartphone

- Connectivity
  - Cellular: 850/900/1800/1900 MHz (GSM/EDGE/WCDMA/HSDPA)
  - Satellite: 2 GHz S-band (GMR-1 3G)
  - WiFi, Bluetooth, GPS
- Software
  - Windows Mobile 6.5
  - Rich smartphone functionality
  - Application suite
  - Custom applications
- Hardware
  - Touchscreen 2.6”
  - Connectors: external antenna, micro USB, audio
  - MicroSD memory card slot
- Battery
  - Cellular <5hrs talk time, <160hrs standby
  - Satellite <1.3hrs talk time, <48hrs standby
    - Only on when activated by user

Next Generation Chipsets

	GSM/HSPA/LTE/GMR-3G	CDMA/HRPD(EVDO)HSPA+/LTE/sHRPD
Chipset	Infineon • Software Defined Radio – Programmable protocols – Support for all major frequency bands • High volume / Low cost chips • Lower power consumption	Qualcomm • Qualcomm Chipset – sHRPD Satellite Protocol in future chips • Significant downstream channels • High volume / Low cost chips • Universal – 3GPP, 3GPP2, CDMA
Satellite Base Stations	Hughes Network Systems • Native support for GMR3-G Satellite Protocol	Alcatel-Lucent • Leverage Commercial Base Stations – Higher Volumes

The Roam-In Value Proposition

Roam-In Service

- Effectively allows customers of GSM carriers to “roam-in” to satellite coverage
- Requires GSM customers to purchase a satellite enabled handset

Channel Partners

- Fills network gaps for carriers
- Enhances customer retention
- Utilizes existing form factor devices
- Creates new market opportunities
- Creates a key competitive differentiator

GSM Customers

- Provides complete coverage nationwide
- Single device for everyday and disaster communications
- More robust voice and date applications (than existing MSS)

ATC Opportunities

- **Several Integrated Satellite / ATC opportunity classes identified**
  - -- 4G greenfield mobile broadband network with ubiquitous satellite coverage
  - – 4G upgrade for existing carriers
  - – 4G capacity expansion for existing carriers
  - – Market / geographic expansion
  - – Industry vertical applications (Smart Grid, transportation, dedicated government uses)
- **Projects activity underway in all classes**
- **Commercial availability of 2.0 GHz LTE equipment expected in 2011**
- **FCC ATC authorization application pending**
- **TS-2 (ground spare) 85% complete and on schedule to permit commencement of commercial ATC operations in late 2010**